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High-level thematic discussions

Background note

Note by the secretariat

I. Mandate

1. The rules of procedure of the Economic Commission for Europe (ECE) require basic documents to be prepared in relation to the agenda items, as appropriate. This document is being submitted to support the high-level dialogue under agenda item 3 of the High-level segment.

II. Sustainable development as driver of positive change

2. The future adoption of a set of Sustainable Development Goals (SDGs), as the core of the post-2015 development agenda, presents a historic opportunity to create public and private action in support of more prosperous societies that leave nobody behind and protect the environment.

3. Sustainable development provides a framework that integrates economic, social and environmental considerations. Long-term economic growth requires appropriate management of natural resources and inclusive societies. Development strategies that combine the three pillars of sustainable development will help to create strong and stable societies to the benefit of all citizens.

4. A growing number of companies are embracing the principles of responsible investment, incorporating environmental, social and governance concerns in their activities. Increasingly, this is perceived as making good business sense. Assets under management by signatories of the Principles for Responsible Investment now stand at more than $45 trillion, up from $4 trillion at the launch of the principles in 2006.

5. The green economy is attracting large investments from both the private and the public sectors, as the reduction of carbon emissions, waste and pollution, and the sustainable use of forests and farmland are increasingly seen as opportunities to generate new jobs and profits for those who anticipate the changes. Global investment in renewable energy, for example, more than doubled since 2006, reaching $214 billion worldwide in 2013.

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6. But this is not only a question of doing more but doing it differently. The search for more environmentally-friendly alternatives or solutions to address social challenges is driving innovation in multiple sectors and brings new jobs and new sources of economic dynamism. More and more companies are innovating and investing towards a circular economy where products are designed to re-enter the biosphere or to be circulated with minimum loss and where economic growth becomes decoupled from the consumption of energy and natural resources.

7. This is a time that calls for collaboration and concerted efforts to take advantage of emerging opportunities – breaking away from sectoral silos, using the potential of international cooperation and developing new forms of cooperation between the public and the private sectors.

8. Through activities in multiple areas and across many sectors, ECE is a unique "sustainable development organization" and stands ready to support the efforts of member States in the transition towards sustainable development and in achieving the expected SDGs.

9. This will be done by translating global goals into concrete recommendations, standards and conventions that can assist countries, private companies and the civil society in building sustainable development strategies.

10. It will be done by convening countries to strengthen the dialogue, share experiences and engage in the review and monitoring of progress towards sustainable development.

11. And it will be done by mobilizing countries and communities, companies and citizens towards the historic vision of sustainable development and the expected SDGs.

III. Sustainable energy and resilient communities

12. Developing communities of the future requires an integrated approach to innovation, design and planning focused on all three dimensions of sustainability: economic, environmental and social. Building the future sustainable energy system is an opportunity to improve energy efficiency from source to use, minimize environmental impacts, reduce energy and carbon intensities, and correct energy market failures. Seizing this opportunity will require coordinated policy review and reform across many sectors.

13. Developing sustainable housing and smart cities that are energy efficient and resilient to climate change and disasters are major policy imperatives. There is also a need to address climate change risks and adaptation needs in urban coastal areas and to deal with threats to industrial facilities from extreme weather events. Sustainable transport systems that can offer choices for mobility while resolving climate change, local pollution, health, and safety, both at city and national levels, are a basic requirement for sustainable development.

14. The global population will rise from 7 billion today to 9 billion by 2050. It will be necessary to reduce greenhouse gas emissions by 50 per cent to avert a climate change disaster while supporting economic development and energy access. Urban dwellers will rise from 3.5 billion today to 6.5 billion by 2050. Seventy-five per cent of global energy consumption takes place in cities and that share will grow. In the ECE region, communities comprise a wide range of city types, with large, modern, well-established, and well-connected cities in developed countries, large and growing cities in the countries with economies in transition, and smaller dispersed communities throughout. The policy challenges are many and varied.

15. Countries with economies in transition and dispersed communities face additional challenges regarding the planning and development of needed infrastructure, public spaces, and safe and affordable access to basic needs and services. For example, in informal communities access to modern energy services is often through illegal and unsafe connections to power networks or through traditional biomass (which can pose important health consequences resulting from indoor air pollution). Old and inadequate building stock in many cities, inadequate insulation and decrepit energy distribution systems result in significant inefficiencies. The consequences are not only high energy bills for citizens, but also high levels of emissions.

16. In addition, changing demographics will require a focus on evolving ergonomics – even with new technology what works for the youth is not necessarily apt for older populations, in particular in the housing and transport sectors. By 2030 the ECE region will have more than 20 per cent of its population over the age of 65, though in Central Asian countries this share will be just below 10 per cent. In Central Asia, the key challenge is how to employ and provide housing to a rapidly growing young population.

17. ECE carries out multiple activities that are relevant for the challenges ahead, thus contributing to meeting the expected SDGs by making cities and human settlements inclusive, safe, resilient and sustainable, and by ensuring access to affordable, reliable, sustainable and modern energy for all.

18. ECE work on energy aims to facilitate access to affordable and clean energy for all and to help reduce greenhouse gas emissions and the carbon footprint of the energy sector. ECE is developing normative instruments, including recently initiated work on further standards in energy efficiency and renewable energy.

19. The work on energy efficiency is exploring not only consumer-level energy efficiency issues (such as energy efficient housing, vehicles and appliances), but also upstream energy efficiency topics in generation, transmission and distribution. It is an opportunity to accelerate the change in the traditional model of providing energy services. The growth in distributed generation (e.g., heat pumps, fuel cells or solar photovoltaics), the shaping of energy demand through information technology (e.g., home energy management systems and the "internet of things"), the separation of time of production from time of consumption through energy storage (e.g., accessing unused vehicle batteries or changing the pattern of operation of freezers) and the application of a range of new technologies for improving the management of the high voltage networks (smart grids) are all indicators of the energy revolution that is underway. The development of smart energy networks with common rules of operation is an important opportunity to enhance the collaboration between variable renewable energy technology and natural gas through smart power grids and "smart" gas grids, thereby enhancing the cost-effective penetration of lower-carbon technology.

20. ECE has developed or is exploring a range of normative instruments in the area of natural gas and methane, including best practice guidance to enhance the role of natural gas in the future energy mix. Proper management of methane from source to use will be an effective means of reducing emissions of an intensive greenhouse gas.

21. Finally, ECE is helping member States improve overall management of their natural endowments through its work on the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC), which has developed to become a universally acceptable and internationally applicable scheme for the classification and reporting of fossil energy and mineral reserves and resources.

22. The work of ECE in the field of housing and land management is dedicated to making cities and homes sustainable, green, resilient and climate neutral. At the building level, guidance is provided through an Action Plan for Energy Efficiency in Housing that has been translated into national action and best practices. Standards for energy efficient housing are being developed and, if implemented, they will have an enormous potential for both energy and economic savings. Passive Houses allow for energy savings for heating and cooling of up to 90 per cent compared with typical building stock and over 75 per cent compared to average new buildings. It is through better design of homes that most savings can be made. ECE is working in this direction, promoting new solutions for green homes and assisting countries to implement them.

23. At the city level, ECE work on spatial planning provides the framework for policymakers to address the challenges of urban resilience by providing integrated guidance in areas such as: infrastructure development and management; green and public spaces; buildings; access and mobility; and energy supply and distribution. Throughout the ECE region, public spaces are established where citizens interact and economic activities are mixed and multiply. In countries that still have illegal settlements, they are turned around and squatters engage to build houses that are permanent structures of good quality. This promotes jobs, growth and sustainable development. ECE supports urban planning and the Geneva United Nations Charter on Sustainable Housing provides a blueprint for the region to progress towards more resilient homes and communities.

24. The activities of ECE address the need for clean energy in the transportation sector, where there is a shift towards new and low-carbon transport systems and relying increasingly on electric transport. Increased penetration of natural gas into the transport sector and increasing the share of electric vehicles are important means of reducing greenhouse gas emissions from the transport sector. The ECE region can inspire the rest of the world, as 65 per cent of the global fleet of electric vehicles runs on ECE roads. This and the fivefold increase in the use of combustible renewable energy in the ECE road sector since 2003 makes it a world leader in "greening" the road sector.

25. ECE-administered global conventions on road safety, transport of dangerous goods and vehicle regulations contribute to the efforts to make urban mobility and transport sustainable. In road safety several ECE countries have managed to break the spell and have decoupled the increase of motorization level and the number of road fatalities. Nonetheless, road safety remains a formidable challenge in most ECE countries.

26. ECE also supports the development of policies addressing the needs of ageing populations while harnessing the human capital potential of elder citizens. Fostering inter- and intra-generational solidarity can thus contribute to related SDGs and targets.

27. A key defining feature of the challenges ahead is their interconnectedness. The Pan-European Programme on Transport, Health and Environment (THE PEP) is a good example of the importance of linkages between different areas as well as of the use of partnerships to meet relevant policy goals. Challenges can be turned into opportunities but this requires adopting a coordinated, cross-sectoral, systemic approach that exploits potential synergies. Addressing energy, transport, networks, and logistics issues comprehensively in an integrated fashion contributes to a better economic, environmental and social balance.

28. There are multiple areas that require policy attention to take advantage of the opportunities for positive change, including: urban design, planning, implementation and operating systems; smart grids, renewables, distributed energy production and storage;

transport design, operation and technology; information and communication technology; architectural design of housing and buildings; improved energy, water and waste management; appliance and lighting norms and standards; systems performance evaluation and compliance; and development of relevant indicators and collection of needed data.

29. By taking a holistic, integrated perspective in managing communities, member States have an opportunity to improve quality of life, environmental performance, health and safety, energy efficiency and carbon intensity. This requires connecting and integrating all aspects of an urban environment in urban planning, and the development and application of normative standards. Work in various cities around the world indicates that there is a possibility to achieve carbon-neutral, low energy consuming, net energy-producing cities powered from waste, local renewable and clean energy. At the same time, these outcomes can be achieved only if there is efficient planning, design, financing, commissioning, construction and operation of facilities while taking into account cross-sectoral linkages.

30. Meeting the imperatives of sustainable development and a low carbon economy requires managing energy transitions efficiently and effectively in collaboration with all stakeholders. Municipal governments need to embrace integrated sustainable community concepts comprehensively. Governments, businesses, academia, intergovernmental and non-governmental organizations need to collaborate in developing actionable policies to stimulate innovation. The capacity to manage new technology must be improved so that urban infrastructure and urban systems for municipal services can be developed, integrated, and rationalized efficiently.

31. Meeting the challenges of the future will require mobilizing the efforts of multiple stakeholders and coordinating initiatives in many sectors. ECE is active in many relevant areas and can, therefore, make an important contribution. Joint task forces across sectoral Committees working on collaborative projects could be useful instruments to build on current strengths in order to develop more effective synergies.

IV. Sustainable management of ecosystems and natural resources

32. Preserving natural resources and addressing climate change challenges require deep changes in the management of natural resources and the use of ecosystems. Innovative approaches are needed to strengthen and to promote the dissemination of already existing green technologies that make it possible to use energy, forests, land, water and other natural resources sustainably, while contributing to economic vitality and social progress for all.

33. The ECE region is a very diverse one. It includes some of the most economically and industrially advanced countries in the world, and numerous countries with economies in transition. As the environment is without borders, the environmental challenges in this region are many and interlinked. For example, air pollution, which was recently identified as a main cause of lung cancer, was responsible for some 600,000 deaths in 2012. Emission values under the Air Convention and its Protocols need to be further lowered, which will also stimulate the development of green technology. More than 100 million people do not yet have access to safe drinking water and adequate sanitation. Water quality needs further improvement in many parts of Europe, mainly in rural areas, through better regulation and enforcement, together with investment in wastewater treatment plants. Water efficiency will need to be further increased by improved water metering and reuse of wastewater. In addition, new policies and strengthened enforcement measures need to be developed to halt the loss of biodiversity and endangered species, to tackle desertification and land degradation, to control the release of hazardous chemicals, and to curb climate change.

34. ECE member States are the source of two-thirds of the world's pollution, being among the largest consumers of natural resources and energy. Fifty per cent of the global 6 billion tonnes of carbon emissions (CO_2) coming from inland transport and domestic aviation is generated by ECE countries. At the same time ECE is the only region where these sectors witnessed a decrease in carbon emissions while in the rest of the world they continued to increase (over 30 per cent increase in carbon emissions from inland transport and domestic aviation in the ESCAP[1] and ESCWA[2] countries, over 20 per cent in the ECLAC[3] region and around 15 per cent in the ECA[4] region between 2001 and 2011). However, the progress on the key requirements for sustainable development is still insufficient: decoupling economic growth from nature degradation; tapping into the potential for resource efficiency; using life-cycle approaches and pricing schemes that take into full account the impact of resource use; and integrating environmental issues into sectoral policies and management plans.

35. There is a huge potential to speed up the transition towards a green economy, which can be led and coordinated by a pan-European strategic framework for greening the economy with common priority objectives, possible goals, implementing actions and targets and indicators of achievement to facilitate the measurement of progress. In terms of policy mixes, there is no one-size-fits-all solution to achieve a transition to a green economy. They must be tailored to each country's characteristics, natural resource endowments, level of development and the strength of its institutions. The nature and size of the predominant market failures, the sectors, objectives and targets a country decides to prioritize and other situation-specific factors also need to be considered. Policies thus could comprise market-based instruments, for example taxes and cap-and-trade systems, non-harmful subsidies, and complementing regulatory and voluntary approaches.

36. In the ECE region there is a diversity of lessons learned and good practices that could be shared with other regions. An appropriate monitoring tool for measuring the transition to green economy and to enhance policy decision-making is the Shared Environmental Information System (SEIS), which will be rolled out in the whole region over the next years. Green economy is also based on more inclusive societies and improved access to environmental information and justice.

37. ECE contributes in multiple ways to the implementation of the expected SDGs, in particular regarding availability and sustainable management of water and sanitation for all, climate change and the protection, restoration and promotion of the sustainable use of terrestrial ecosystems. Improved environmental governance is pursued through the mobilization of consensus and the formulation of environmental policy, the development of international environmental law and support to relevant international initiatives. ECE helps member States to put these norms and rules into practice by organizing seminars, workshops and advisory missions, and by publishing guidance and compilations of best practices in numerous areas linked to the sustainable management of natural resources and pollution prevention. For example, on transboundary river basin management, many of the more than 100 large dams in Central Asia are poorly maintained and pose a potential risk for downstream populations. The creation of a database on the state of the existing dams in

1 Economic and Social Commission for Asia and the Pacific
2 Economic and Social Commission for Western Asia
3 Economic Commission for Latin America and the Caribbean
4 Economic Commission for Africa

the Chu Basin will help to prioritize those which are most at risk of failure and need to be repaired first, and this methodology can be applied to the whole region.

38. Specific areas of environmental concern, such as water and air pollution, access to environmental information and public participation, mainstreaming environmental assessment into development planning, and preventing industrial accidents, are addressed by servicing five environmental treaties and their protocols and helping the parties to monitor implementation and develop further their work.

39. ECE supports countries with economies in transition to improve their environmental performance by assessing their efforts to reduce pollution and sustainably manage their natural resources, and by making targeted recommendations.

40. There are strong linkages between the environment and other areas. ECE takes a very active role in regional and cross-sectoral processes such as "Environment for Europe", "Transport, Health and Environment Pan-European Programme", the "European Environment and Health Process" and "Education for Sustainable Development". Education is key for equipping people with the knowledge and skills needed for the transition towards the green economy. Education should embrace the values of sustainable development and enable individuals to understand their role in building the green economy, as well as how to consume, produce and act sustainably.

41. ECE is engaged in the development and implementation of policies and action plans for sustainable forest management in order to increase the potential of the region's forests to provide ecosystem services and sustainable products and to strengthen this key economic sector in the region, which accounts for over 40 per cent of global forest and wooded areas. The joint efforts to improve sustainable forest management are bringing concrete results. The net increase of forest cover in the ECE region between 2000 and 2015 is 23.6 million ha, or 1.3 per cent of the total area of forest and other wooded land in 2000. This contributes to tackling climate change, to improved biodiversity and to the creation of jobs and growth. The protection and enlargement of the total forest biomass carbon sink amounted to 255 million tonnes of carbon per year between 2005 and 2010. The area of forests protected for biodiversity has increased continually during the 20-year period in the whole ECE region, to about 12 per cent in 2015. At the same time the contribution of the forest sector to GDP has increased in absolute terms over the past 20 years and provided employment to almost 5 million people. This is the green economy in practice.

42. The implementation of the Rovaniemi Action Plan for the Forest Sector in a Green Economy will further enhance the contribution of the region to a stronger bio-based economy and unleash the potential of the forest sector to provide ecosystem services and sustainable products; thus making an effective contribution to the implementation of expected SDGs and targets related to the sustainable management of forests.

43. Over the years, the efforts of ECE have contributed to tackling specific environmental problems and have produced concrete results. In the field of air pollution, for instance, over the past three decades, sulphur emissions in the ECE region have declined by 70 per cent, emissions of nitrogen oxides have been cut by more than 40 per cent, volatile organic compounds have been reduced by some 50 per cent and ammonia emissions have been reduced by 30 per cent. An estimated 80 per cent of nitrogen is lost from agriculture through leaching and run-off of nitrate or organic nitrogen and gaseous emissions to air. The implementation of the new "Ammonia Framework Code" will help countries further reduce ammonia emissions from agriculture.

44. Since 1997, Parties to the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) have notified and consulted each other and the general public on the environmental risks and measures to manage these risks on more than one thousand projects. Under the Convention's Protocol on Strategic Environmental Assessment, by applying the strategic environmental assessment procedures in planning or even legislation, Parties achieve long-term sustainable growth, promote green economy and enhance inter-agency consultations and public participation within and outside the borders. Thanks to the ECE Water Convention, almost all countries sharing transboundary waters in the region now have cooperation agreements with their neighbours. Because of the Aarhus Convention, 47 ECE member States committed to effective, transparent and participatory decision-making on a wide range of issues related to ecosystems and natural resources. And because of the Aarhus Convention's Protocol on Pollutant Release and Transfer Registers, companies are required to provide information on their releases of certain polluting substances – such as greenhouse gases and heavy metals – to a national register that is publicly accessible.

45. The ECE Conventions and Protocols are living legal frameworks, capable of adapting to emerging threats: in May 2012, the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone under the Air Convention was amended to include national emission reduction commitments for fine particulate matter, a cause of respiratory diseases, and for black carbon, now known to be an important factor in global warming and climate change.

46. The activities of ECE on the sustainable management of ecosystems and natural resources can greatly contribute to the implementation of the United Nations post-2015 development agenda and its expected SDGs, both in our region and at a global level, including support for strong and inclusive mechanisms for reporting, monitoring progress, learning lessons and ensuring mutual accountability. The Environmental Performance Reviews, in particular, are a good example of a successful instrument and the methodology used could be transferred to other regions, in cooperation with other United Nations Regional Commissions, as a mechanism for the review and monitoring of the expected SDGs.

V. Connectivity and competitiveness for sustainable lives

47. Today's society, with its numerous networks (transport, trade, information), is highly connected. Physical and non-physical connectedness is crucial for the circulation of people, commercial exchanges, energy security and the overall efficient distribution and use of energy. There is a need both for an appropriate transport infrastructure and supporting services and facilitated border-crossing conditions among countries. The capacity to participate in global and regional value chains – an important factor influencing competitiveness – is a key policy concern and this capacity is closely linked with connectivity.

48. Countries cannot change their physical distance to market but they can greatly reduce their economic distance by lowering regulatory and procedural barriers to trade and international transport. Connectivity plays an essential role in trade which depends on physical and non-physical conditions, including domestic and cross-border information flows between relevant economic actors in the business community and government agencies. Border-crossing facilitation, as well as internationally harmonized norms and standards are also key elements for connectivity and competitiveness. These information flows are, in turn, greatly facilitated by the simplification, standardization and

harmonization of trade procedures. Furthermore, modern information and communications technology can effectively link the rural poor and global markets by bringing market information to remote areas and by providing the local entry point for products to global markets. Connectivity is, therefore, a major factor determining the ability of countries to compete.

49. ECE is a diverse region regarding connectivity and competitiveness. Some areas, even within the most developed countries, find themselves on the "edge" or on the "peripheries" and less connected, with fewer opportunities for employment and growth. Infrastructure bottlenecks, missing transport links for connecting Europe with adjacent continents, as well as cumbersome border-crossing procedures are some of the most visible physical and procedural obstacles hampering better internal and external connectivity for ECE countries. More than 56 million citizens in the ECE region do not have access to all-season roads. Overall, the ECE region includes some of the top-ranked, as well as some of the bottom-ranked countries, in global competitiveness ratings.

50. According to the World Economic Forum, countries are grouped into resource and efficiency-driven or innovation-driven economies. The first group faces barriers and shortcomings in connectivity infrastructure, while the second group faces challenges in implementing the latest technologies and ensuring that they gain wide acceptance in the market place in order to increase connectivity. In this regard, the priorities of national economic development strategies may vary, reflecting the importance of the main constraining factors. Some countries may wish to give priority to building their infrastructure, some to fostering innovation and some to a combination of both.

51. Innovation is also relevant for less advanced countries, although the emphasis in these economies is on the absorption of technologies and knowledge generated elsewhere. For all countries, wide dissemination of innovations through the economy is a major factor of technological progress. Connectivity plays a key role in facilitating access to knowledge and technologies, including through trade, and its dissemination throughout the economy. At the same time, the performance of sectors that facilitate connectivity (such as transport, communication, energy and trade infrastructure and services) depends on the degree of innovation they display.

52. Inventions and innovations have always led economic and societal transformations. While getting and staying connected is essential for individual and institutional competitiveness, increased social and environmental sensitivity calls for sustainable solutions. As the policy segment on "Innovations for Sustainable Mobility" of the 2014 Inland Transport Committee demonstrated, among the numerous innovations, vehicle automation stands out as a major change and challenge transforming access, connectivity, mobility and delivery. There are numerous potential benefits of vehicle automation, in particular with regard to autonomous vehicles that are self-driving. They range from enhanced safety through a reduced environmental footprint to opening the boundaries for more people to be able to enjoy individual mobility. However, much less research has gone so far into understanding the challenges, limitations and probability of the promised advantages.

53. The work of ECE contributes to meeting the expected SDGs, by creating favourable conditions for well-connected communities and sustainable economic growth, and by fostering innovation. ECE supports the strengthening of the means of implementation and promotes the revitalization of the global partnership for sustainable development, which incorporates targets in relation to trade and science, technology and innovation.

54. ECE plays a major role in supporting and promoting connectedness among member States as well as globally, through its multiple activities in inland transport and its range of trade facilitation and electronic business recommendations, standards and outreach programmes. ECE has contributed to reducing the cost of doing business across borders through efficiency gains in international freight transport resulting from the implementation of the International Convention on the Harmonization of Frontier Controls of Goods and the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention).

55. ECE facilitates and strengthens the work on innovative transport systems through policy dialogue related to its regulatory and analytical activities. ECE spearheads the thinking about the deployment of Intelligent Transport Systems, e.g., through its publication on *Intelligent Transport Systems for Sustainable Mobility* in 2012; the World Forum for Harmonization of Vehicle Regulations of the Inland Transport Committee is the key body where governments ensure that new technologies are introduced in a harmonized way and serve vehicle safety and environmental performance, while international trade in vehicles is facilitated. For example, a Global Technical Regulation on Hydrogen and Fuel Cell Vehicles was adopted in 2013, and work is being undertaken on a Global Technical Regulation on Electric Vehicle Safety. However, much more needs to be done.

56. Work on connectivity is particularly relevant for landlocked ECE member States and regions located far from seaports, which face serious barriers in their efforts to integrate regionally and globally. The work of ECE in this area has fostered regional integration and cooperation within the framework of the Almaty Programme of Action for Landlocked Countries and will continue in support of the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024, in particular on transit and trade facilitation issues. The United Nations Special Programme for the Economies of Central Asia (SPECA) also contributes to fostering regional integration and sustainable development in the landlocked countries of Central Asia.

57. Beyond the region, ECE can make a contribution to increasing global connectivity both through its regional activities and by being a global player in those areas under its subprogrammes where this is of benefit to governments. The harmonized development of transport services and infrastructure, border-crossing procedures, the use of trade facilitation principles as well as regulations, norms and standards for vehicles or agricultural products support increased connectivity, and help to reduce the cost of economic interaction. The work of ECE contributes to meet expected SDGs related to the development of a reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure.

58. ECE carries out regular reviews of the factors that drive innovation in countries with economies in transition, including the impact of existing policies, through a peer-review process. By doing this, it contributes to meeting related targets on expected SDGs on regional and international cooperation, on access to science, technology and innovation, and enhancing knowledge sharing.

VI. Measuring and monitoring sustainable development

59. The breadth and depth of the proposed SDGs is unprecedented. Effective measurement and reporting at the global, regional and national levels will be crucial for implementation. High-quality data are needed to monitor progress, but also to improve decision-making, hold policymakers accountable and help identify effective policies.

60. The production of high-quality and relevant data requires investment in national statistical capacities and new measurement approaches to capture different aspects of sustainable development. Providing data for SDGs will be a challenge even for developed statistical systems.

61. There is a need for a "data revolution". New data sources, such as geospatial information, "big data" and information technology offer new opportunities to track progress. Data should be publicly available, open, timely, coherent and relevant, and should be created through the collaboration of statisticians, international organizations, civil society, academia and the private sector.

62. In the last two years, more information was created than in the entire human history before. Many of these data are generated on the web or automatically produced by an ever growing number of electronic devices surrounding us. These data sources with high volume, velocity and variety are referred to as "big data" and will increasingly play an important role in informing policy decisions and in measuring progress towards the expected SDGs.

63. The "data revolution" will transform the way in which we use and understand data, opening new possibilities, but also raising multiple challenges. As more and more data become available from an ever-growing range of sources, it becomes increasingly important to understand how to assess this data and its quality in order to provide the right evidence as the basis for policies.

64. In addition to monitoring the achievement of policy goals, data is also required for empowering people and mobilizing actions for change. The information technology provides new opportunities for the creation of open and transparent sources of data to the benefit of companies, civil society and private companies. Improving the timeliness of data is a particular challenge that may require rethinking how official statistics are produced.

65. Environmental monitoring and information is a specific challenge for the countries of South-Eastern and Eastern Europe, Caucasus and Central Asia. Significant improvement in data availability and quality is needed for assessing the state of the environment, understanding environmental pressures and evaluating progress on issues covered by multilateral environmental agreements and sustainable development goals. Another specific challenge is measuring the contribution of different sectors, including transport, to CO_2 emissions, thus paving the way to design better policies for climate change mitigation.

66. ECE has been providing practical solutions to these challenges and is well positioned to address the multiple data and monitoring demands resulting from the post-2015 development agenda, including the expected SDGs. The strong network within the Conference of European Statisticians (CES) is a unique platform for developing new data sources and standards and for engaging in capacity-building.

67. In particular, ECE has been developing frameworks to measure sustainable development that have acquired a global significance. The Recommendations for Measuring Sustainable Development endorsed by CES are being used as a reference by an expert group, set up by the United Nations Statistical Commission, to develop the indicator framework for reporting on the SDGs. In April 2014, the CES plenary session endorsed the first ever Recommendations on Climate Change-Related Statistics aimed at improving existing official statistics to support climate change analysis and reporting on greenhouse gas emissions under the Kyoto Protocol.

68. In addition, the ECE work on the modernization of statistical production and services provides guidance to member States on the use of new data sources, new tools and technology to advance the measurement of progress.

69. In the forest sector, the pilot System for the Evaluation of the Management of Forests (SEMAFOR) provides a mechanism for monitoring and accountability of forest-related commitments in the ECE region, including the expected SDG targets. The system is being applied with the use of information collected in the framework of the cooperation between ECE and the Food and Agriculture Organization (FAO), and in collaboration with regional institutions and processes (i.e. Eurostat, Forest Europe) and global partners (i.e. International Tropical Timber Organization).

70. Developing partnerships will be crucial to meeting the data needs for monitoring sustainable development. ECE, working in particular with the European Environment Agency, is managing the process of establishing the pan-European Shared Environmental Information System (SEIS) by all of its member States. The aim of SEIS is to support the mobilization of the data revolution in the environmental pillar of sustainable development in the ECE region. The system is planned to be fully operational by the end of 2020 while partial operation should be ensured gradually starting in 2015. At the heart of SEIS are data and information flows shared between existing networks and with civil society.

71. A fully operational SEIS will make data and information readily available for: assessing changes to the state of the environment; understanding environmental pressures; as well as for evaluating progress in addressing the issues covered by multilateral environmental agreements or global initiatives such as the sustainable development goals and the post-2015 development agenda. Hence, SEIS provides the necessary science-policy interface for decision-makers and policymakers.

72. Coordination guides the work that ECE carries out on transport statistics, which is done in collaboration with Eurostat and the International Transport Forum (ITF). Major policy questions, including those regarding sustainable development, are being answered through a common questionnaire.

73. Appropriate data is the foundation of modelling exercises to project the future and establish the impact of different policy decisions. An example is the For Future Inland Transport Systems (ForFITS) model, a monitoring and assessment tool for CO_2 emissions in transport developed by ECE to facilitate climate change mitigation. This tool projects transport activity, energy use and CO_2 emissions under different scenarios. ForFITS enables the user to evaluate the most appropriate policy measures to maximize CO_2 emissions abatement. Given sufficient resources, ECE will continue to use the ForFITS model to support policy reviews, and maintain and enhance the tool itself in 2015 and beyond. This includes the possibility to use the model for regional and local applications and to develop new modules, for example on emissions from Non-Road Mobile Machinery as well as on road safety.

74. An advanced approach for building scenarios for the future of the forest sector in the ECE region was developed through the Forest Sector Outlook Studies. The approach integrates various forest, production and trade models to outline the possible trends of forest development in the region and their use. The results of this work provide the main content for deliberations on the future of the sector in the entire region as well as individual member States (through national forest dialogues).

75. With "Big Data", many new potential sources are becoming available to measure and monitor sustainable development. However, these new data sources are typically less stable over time than more traditional sources, and the increased volume makes it more difficult to differentiate important trends from random noise. The ECE Statistical Division has taken the lead in testing "Big Data" for the production of official statistics. This includes establishing recommendations regarding partnerships, privacy and quality of these statistics. Teams from 25 countries and international organizations are experimenting with data from social media, mobile phones, smart meters and traffic sensors in a so-called Big Data 'sandbox' hosted by Ireland. The aim is to produce sound official statistics in some areas which are based on "Big Data" sources by the end of 2015. A common feature is that many new sources link events to locations. There is a need to develop an understanding of how the geographic dimension of new data sources can contribute to an easier understanding and integration of the growing volumes of information on sustainable development.

76. All of these challenges require new forms of collaboration among official statistical agencies, which need to respond to new situations and demands. Official statistics are mainly based on methods and systems developed in the era of the sample survey. Moving into the era of deriving knowledge through the integration of data from multiple sources, statistical systems need to adapt. At the same time, pressures to "do more with less" are growing, encouraging greater efficiency in statistical production.

77. The relevance of the "data revolution" goes beyond the work of statistical agencies. There is a need to change the culture of how we use and understand data. As society becomes more information-driven, the ability to make sense of data is becoming a vital life skill for people at all levels. Promoting and enhancing statistical literacy is a key challenge. Statisticians, educators and the media will have to work together to equip citizens with the skills they need to navigate this data-rich world.

VII. Partnering for sustainable development

78. Partnerships for sustainable development have become an important issue for many governments and United Nations agencies. The Rio+20 Summit unequivocally recognized "that the active participation of the private sector can contribute to the achievement of sustainable development, including through the important tool of public-private partnerships". The *World Investment Report 2014* of the United Nations Conference on Trade and Development (UNCTAD) has called for 'action plans' to promote Public-Private Partnerships (PPPs) if the SDGs are to be met. The initiative for Sustainable Energy for All (SE4ALL), which is actively supported by ECE, represents a vision for how governments, business and civil society, working in partnership, can make sustainable energy for all a reality by 2030. The need for building stronger public-private partnerships will grow over the coming years as a means of implementation of expected SDGs.

79. There are different forms of partnerships, as well as different drivers and mechanisms for developing partnerships that can contribute to sustainable development goals and a better future for the planet. Modes of partnership vary and, at the same time, share an underlying premise for their establishment which is that governments, by themselves, cannot find solutions to these challenges and need to partner with the private sector, civil society and other groups. Meeting the SDGs would require massive transformational investments that the public sector will be unable to finance on its own.

80. Partnerships hold great promise, but there are also considerable challenges to realizing their full potential. Replicating successful partnerships and scaling them up to create real impact is difficult. Despite advances, the integration of civil society in partnerships is not yet satisfactory. Another challenge is developing partnerships that succeed in targeting the very poor and offer them adequate access to public goods such as clean water and education. There has been also substantial progress in mobilizing the business community and increasing their engagement with the sustainable development goals. At the same time, much progress is still required in strengthening the involvement of the business sector.

81. ECE has addressed these multiple challenges in its activities, successfully bringing people together in different types of partnerships. By continuing to do this, it will support meeting the expected SDG call to develop multistakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources in support of sustainable development.

82. The TIR (Transports Internationaux Routiers or International Road Transport) Convention is a good example of a public-private partnership that has successfully achieved global scale and impact. TIR today is an international customs transit system based on the United Nations TIR Convention and implemented at a global level as the most successful public-private partnership in the transport sector. TIR is the only universal transit system that allows goods to transit from a country of origin to a country of destination, by allowing customs-sealed vehicles and freight containers to transit countries without border checks.

83. Currently, the TIR Convention has 68 contracting parties. In addition, countries such as Argentina, Brazil, China, India and Pakistan, have expressed a keen interest in joining the TIR system. With further enlargement of its geographical scope, and the forthcoming introduction of an electronic TIR system (the so-called "eTIR-system"), it is expected that the TIR system will continue to remain the only truly global customs transit system and one of the most successful multilateral trade and transport facilitation agreements.

84. Another example of partnership with a global impact is UN/CEFACT (the United Nations Centre for Trade Facilitation and Electronic Business), which helps business, trade and administrative organizations from developed, developing and transition economies to exchange products and services effectively. To this end, it simplifies national and international transactions by working in partnership with all stakeholders, including the private sector, to harmonize processes, procedures and information flows related to these transactions, rendering these more efficient and streamlined, with the ultimate goal of contributing to the growth of global commerce. In view of the global nature of its work, all United Nations Member States and organizations recognized by the Economic and Social Council participate. UN/CEFACT encourages developing countries and transition economies to participate in the standards development processes.

85. Over 200 volunteer experts from around the world prepare UN/CEFACT standards and recommendations. Experts participate without representing the special interests of their countries or institutions and are drawn from private companies, governments, intergovernmental organizations, industry associations and academia. ECE standards have radically reduced the cost of global trade transactions and have become an engine for growth worldwide.

86. ECE work on trade facilitation directly supports implementation of the World Trade Organization (WTO) Agreement on Trade Facilitation and, in addition, its work on agricultural quality standards supports Article 9 of this Agreement where countries agreed

on specific provisions for the clearance and release, in the shortest possible time, of perishable produce.

87. In the outcome document of the 2012 Rio+20 Conference on Sustainable Development, United Nations Member States recognized the key role that agriculture has in achieving sustainable development and food security. ECE is responding to this challenge through enhanced partnerships with FAO, OECD, the private sector and member State experts in the area of agricultural quality standards. These partnerships will help countries to achieve SDGs related to agriculture as an economic development tool.

88. One of the most effective ways to promote partnerships is to make them easily replicable through the development of international standards and recommendations. The ECE International PPP Centre of Excellence (ICoE) is developing international standards that will allow for easier replicability of successful public-private partnerships (PPP) models. It does this through first identifying and documenting international best practices and then developing them into international standards. Project teams with representatives from both the public and private sectors work to develop standards in a transparent way. In addition, the partnerships under the ECE International PPP Centre of Excellence are very cost-effective. The collection of international best practices is done by government-hosted specialist centres, with an emphasis on sectors which could have a major impact on SDGs.

89. Integrating civil society into partnerships remains a critical task and the work under the Aarhus Convention shows how the public can be brought into the heart of decision-making on environmental issues. This collaboration with civil society leads to more environmentally sustainable infrastructure projects. The Convention empowers civil society by granting it the right to access information on environmental matters, the right to participate in environmental decision-making, and the right to access to justice for redress in cases where their rights have been compromised.

90. The impact of this Convention has been considerable. The European Bank for Reconstruction and Development (EBRD) now uses the principles contained in the Convention as standards for involving civil society in its investment projects. EBRD project officers have also used the Convention's Compliance Committee findings to assist them when carrying out projects.

91. There are multiple examples of successes in mobilizing the private sector in different ECE activities, including both standard-setting and advisory work. ECE World Forum for Harmonization of Vehicle Regulation brings together the world's leading car manufacturers and their suppliers to develop vehicle standards. The ECE PPP Business Advisory Board comprises around 25 of the world's leading companies involved in infrastructure investments (water and sanitation, financing, construction, transport technology, etc.) This group offers its knowledge and expertise to governments to assist them in reviewing the bankability of their project proposals and in removing existing bottlenecks in order to attract private capital.

92. Partnerships are going to be a necessary component of the post-2015 development agenda. The importance of strong and 'smart' partnerships will grow. A key policy question would be how to ensure that partnerships both increase and become more effective. ECE can build on its experiences and assets to promote different forms of collaboration with other stakeholders and increase the relevance and impact of partnerships.

93. In order to more effectively promote public-private partnerships, ECE will strive to make the work on standards even more open and participatory. This could be done by

ensuring that all United Nations Member States participate equally in the ECE standard making and implementation processes and look for resources to help experts from low and middle-income ECE member States participate more fully. There is a need to improve the promotion and awareness of ECE standards and to share knowledge and expertise more widely by working with partners. ECE will strive to exploit the synergies that can be created through cross-sectoral work. The ECE PPP Business Advisory Board, in addition to giving advice to member States, could also share its expertise with ECE on how to engage the private sector more effectively in meeting the forthcoming challenges of the expected SDGs.

94. The efforts of ECE to engage with other partners, including other international organizations, the business sector, academia and civil society, could become more effective through the establishment of a dedicated partnership facility. This could systematically review opportunities, ensure that partnerships are appropriately structured, identify and exploit the potential for cross-sectoral partnerships and draw lessons in this area to be shared across the organization. It would also provide the necessary visibility to facilitate the efforts to engage new partners.